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Indian Standard

SPECIFICATION FOR OSCILLATING ROCK SHAFTS FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

(First Revision)

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Indian Standard

SPECIFICATION FOR OSCILLATING ROCK SHAFTS FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

(First Revision)

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*Shri D. Hansa was the Chairman of the meeting in which this draft was finalized.

(*Continued on page* 2)

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Indian Standard

SPECIFICATION FOR OSCILLATING ROCK SHAFTS FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 10 October 1969, after the draft finalized by the Sewing Machines Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 This standard was first issued in 1965. The present revision has been taken up to incorporate certain additional requirements.

0.3 This standards covers the requirements for oscillating rock shafts for sewing machines, and is intended to assist in regulating the quality of indigenous oscillating rock shafts. This standard is one of a series of Indian Standards on sewing machines and their components, being prepared on the recommendation of the Tariff Commission and at the instance of Development Commissioner for Small Scale Industries.

0.4 While preparing this standard assistance has been derived from Japanese Industrial Standard JIS B 9032-1960 'Oscillating rock shaft of sewing machine for home use' issued by the Japan Industrial Standards Committee.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down the requirements for oscillating rock shafts for sewing machines for household purposes.

---

*Rules for rounding off numerical values (*revised*).

1.1.1 This standard does not deal with the oscillating rock shafts for industrial or special purpose sewing machines.

2. NOMENCLATURE

2.1 For the purpose of this standard, the nomenclature as given in Fig. 1 shall apply.

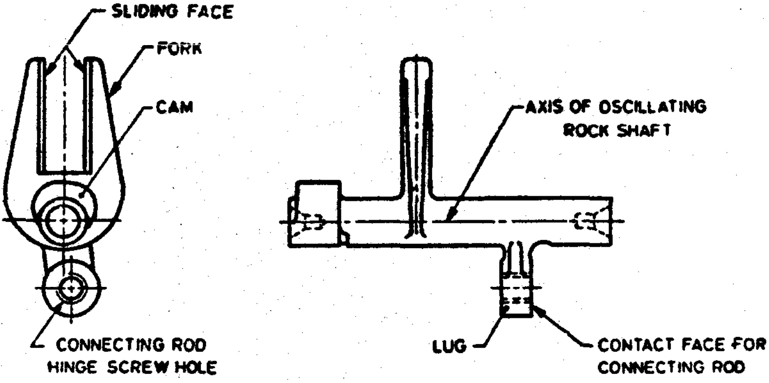

SLIDING FACE
FORK
CAM
CONNECTING ROD HINGE SCREW HOLE
AXIS OF OSCILLATING ROCK SHAFT
LUG
CONTACT FACE FOR CONNECTING ROD

FIG. 1 NOMENCLATURE OF OSCILLATING ROCK SHAFT

3. MATERIAL

3.1 The oscillating rock shaft shall be made either from cast iron conforming to Grade 15 of IS: 210-1962* or any suitable steel, such as C20 or C40 of Schedule II of IS : 1570-1961† with a maximum sulphur and phosphorus content of 0·05 percent each.

4. HARDNESS

4.1 The sliding faces, cam and centre holes of oscillating rock shafts maufactured from steel shall be hardened to a minimum depth of 0·8 mm to attain a hardness value within the range of 600 to 700 *HV*5 (*see* IS: 1501-1968‡).

5. DIMENSIONS

5.1 The main dimensions of oscillating rock shaft for sewing machines shall be as given in Tables 1 and 2.

---

*Specification for grey iron castings (*revised*).

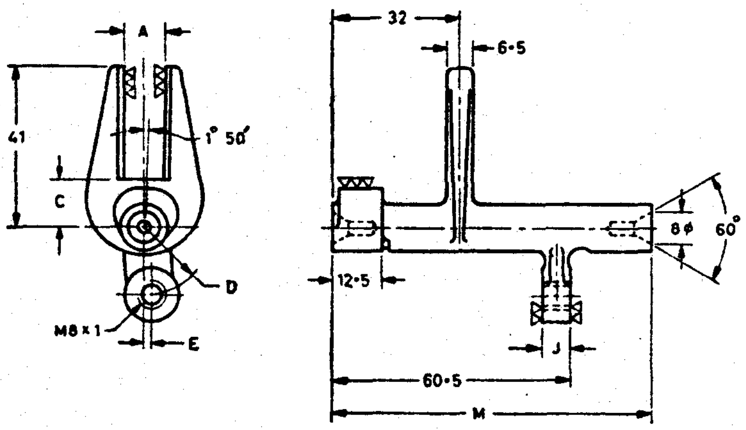
†Schedules for wrought steels for general engineering purposes.

‡Method for Vickers hardness test for steel (*first revision*).

TABLE 1 DIMENSIONS FOR OSCILLATING ROCK SHAFT, TYPE A

(*Clause* 5.1)

All dimensions in millimetres.



	A	*C*	*D*	*E*	*J*	*M*
Max	9·815	12·13	16·88	2·16	7·03	81·05
Min	9·800	11·87	16·83	2·11	6·97	80·95

NOTE — *See* Fig. 2 for cam profile.

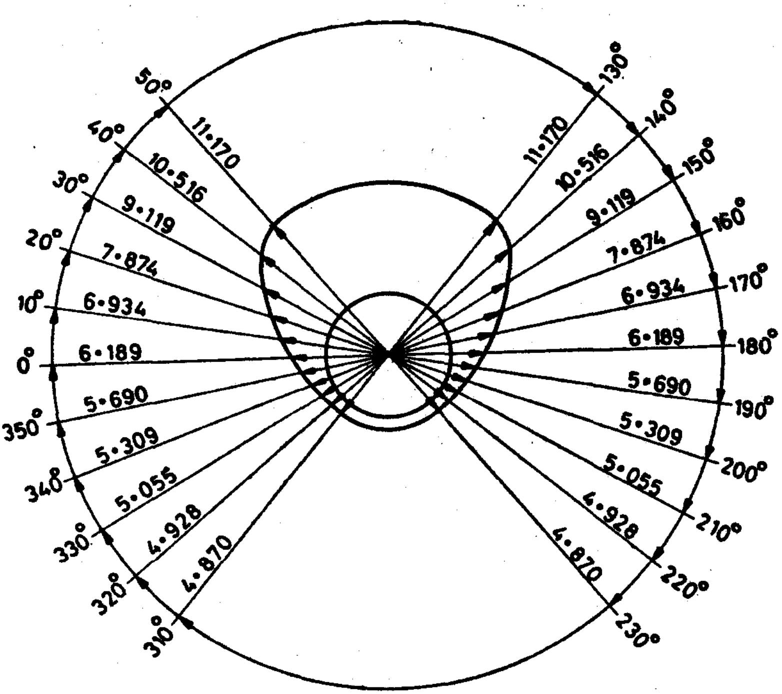
6. TOLERANCES

6.1 The error in parallelism of the axis of oscillating rock shaft with respect to its sliding face shall not exceed 0·15 mm per 100 mm.

6.2 The error in parallelism of the axis of oscillating rock shaft with the centre line of connecting rod hinge screw hole shall not exceed 0·3 mm per 100 mm.

6.3 The error in parallelism of the sliding faces shall be within 0·005 mm over the width of the sliding faces.

6.4 The dimension on any point of the cam with respect to the axis of the oscillating rock shaft shall not vary beyond 0·005 mm from its specified value.



All dimensions in millimetres.

FIG. 2 CAM PROFILE FOR OSCILLATING ROCK SHAFT, TYPE A

6.5 The errors in squareness of the contact face for the connecting rod with respect to the axis of oscillating rock shaft shall be within 0·15 mm per 100 mm.

7. WORKMANSHIP AND FINISH

7.1 The sliding faces of oscillating rock shaft shall be ground to a fine finish (with a minimum surface finish value of 0·4 µm *Ra*).

7.2 The casting shall be free from defects, such as crack, flaw or blowhole and shall be chemically coloured or suitably plated.

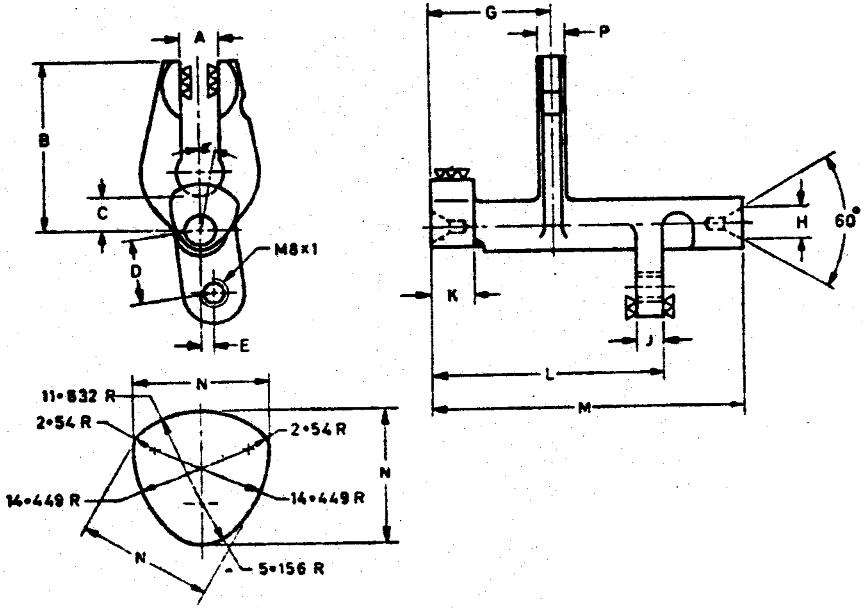
7.3 The centre holes and the cam surfaces shall be ground to a good finish.

7.4 The oscillating rock shafts made from steel shall be chemically coloured or suitably plated and shall be free from rust, cracks, unevenness or any flaw.

TABLE 2 DIMENSIONS FOR OSCILLATING ROCK SHAFT, TYPE B

(*Clause* 5.1)

All dimensions in millimetres.



	Maximum	Minimum		Maximum	Minimum
A	9·855	9·840	*J*	6·72	6·48
B	42·92	42·42	*K*	10·92	10·42
C	8·95	8·45	*L*	58·54	58·30
D	16·54	16·49	*M*	78·86	78·62
E	3·04	2·88	*N*	16·990	16·077
G	31·37	30·87	*P*	6·60	6·10
H	8·00	7·75	α	9°15′	8°45′

8. MARKING

8.1 The oscillating rock shafts shall be marked with manufacturer's name or trade-mark.

8.1.1 The oscillating rock shafts may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

9. PACKING

9.1 Each oscillating rock shaft shall be either given a suitable anti-rust coating or wrapped in vapour phase inhibitor paper (commonly known as VPI paper). Wrapped oscillating rock shafts shall be securely packed in cardboard cartons in accordance with best prevalent trade practice. Each carton shall bear the manufacturer's name or trade-mark and description of contents.

9.1.1 Each carton may also be marked with the ISI Certification Mark (*see* Note under **8.1.1**).

10. SAMPLING

10.1 Unless otherwise agreed upon between the supplier and the purchaser, the sampling plan as given in Appendix A shall be followed. For further information, reference may be made to IS: 2500 (Part I)-1963*.

APPENDIX A

(*Clause* 10.1)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the oscillating rock shafts of the same type and manufactured from the same material under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

---

*Sampling inspection tables: Part I Inspection by attributes and by count of defects.

A-1.2 For ascertaining the conformity of the lot to the requirements of the specification, tests shall be carried out for each lot separately. The number of oscillating rock shafts to be selected at random for the purpose shall be in accordance with col 1 and 2 of Table 3.

TABLE 3 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

(*Clauses* A-1.2, A-1.4, A-2.1 *and* A-2.2)

NUMBER OF OSCILLATING ROCK SHAFTS IN THE LOT	FOR DIMENSIONS AND TOLERANCES, WORKMANSHIP AND FINISH		SAMPLE SIZE FOR HARDNESS
	Sample Size	Permissible No. of Defectives*	
N	*n*		
(1)	(2)	(3)	(4)
Up to 15	5	0	2
16 „ 40	8	0	3
41 „ 110	13	0	3
111 „ 300	20	1	5
301 „ 500	32	1	6
501 „ 800	50	2	8
801 „ 1 300	80	3	10
1 301 and above	125	5	15

*This ensures that lots containing only one and a half percent or less defectives will be accepted most of the time.

A-1.3 If the oscillating rock shafts are packed individually, in order to ensure the randomness of selection, IS: 4905-1968* shall be used.

A-1.4 If the oscillating rock shafts are packed in different cartons, a suitable number of cartons (not less than 20 percent of the total in the lot subject to a minimum of 2) shall be chosen at random. From each of the cartons so chosen, an approximately equal number of oscillating rock shafts shall be picked up from its different parts so as to obtain the required number of oscillating rock shafts specified in col 2 of Table 3.

A-2. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 The oscillating rock shafts selected according to **A-1.2** and **A-1.3** or **A-1.4** shall be examined for dimensions (*see* **5**), tolerances (*see* **6**), and workmanship and finish (*see* **7**). If the number of oscillating rock shafts failing to meet one or more of the requirements mentioned above is less than or equal to the permissible number of defectives given in col 3 of Table 3, the lot shall be declared as conforming to the requirements of these characteristics.

---

*Methods for random sampling.

A-2.2 In the case of those lots which have been found satisfactory according to **A-2.1**, a number of oscillating rock shafts equal to the sample size indicated in col 4 of Table 3, shall be subjected to hardness (*see* **4**). Any oscillating rock shaft failing to meet the requirement for hardness shall be considered to be defective.

A-2.2.1 If no defectives are found among the oscillating rock shafts subjected to the various tests (*see* **A-2.1** and **A-2.2**) the lot shall be declared as conforming to the requirements of the specification, otherwise not.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Conversion*
Force	newton	N	1 N = 1 kg.1 m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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AMENDMENT NO. 1 APRIL 1981

TO

IS:3299-1969 SPECIFICATION FOR OSCILLATING ROCK SHAFTS FOR SEWING MACHINES FOR HOUSEHOLD PURPOSES

(First Revision)

Alterations

(*Page 4, clause 4.1*) - Substitute the following for the existing clause:

'4.1 The sliding faces, cam and centre holes of oscillating rock shafts manufactured from steel shall be hardened to a minimum depth of 0.8 mm to attain a minimum hardness value of 550 *HV*5 (*see* IS:1501-1968[‡]).'

(*Page 5, clause 6.3, line 1*) - Substitute '0.007 mm' *for* '0.005 mm'.

(*Page 5, clause 6.4*) - Substitute the following for the existing clause:

'6.4 The diameter variation on the cam shall not be more than 0.010 mm from its specified value at any point of the cam.'

(*Page 7, Table 2, against dimension* 'N', *under column* 'Minimum') - Substitute '16.977' *for* '16.077'.

(*Page 7, clause 8.1, line 2*) - Substitute 'trade-mark, if required' *for* 'trade-mark'.

(*Page 8, clause 9.1*) - Substitute the following for the existing clause:

'9.1 Each oscillating rock shaft shall be either given a suitable antirust coating or wrapped in vapour phase inhibitor paper (commonly known as VPI paper). Wrapped oscillating rock shafts shall be securely packed in accordance with the best prevalent trade practice. Each package shall bear the manufacturer's name or trade-mark, the type and description of contents.'

(*Page 8, clause 9.1.1, line 1*) - Substitute 'package' *for* 'carton'.

Addenda

(*Page 4, clause 3.1*) - Add the following new matter at the end of the clause:

'or steel conforming to IS:226-1975§'.

(*Page 4, foot-note with '‡' mark*) - Add the following new foot-note after '‡' mark:

'§Specification for structural steel standard quality (*fifth revision*).'

(EDC 34)

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